Elementary Statistics (WL)
Test 1
Fall 2009
Name:…………………………………………..
5+12+10+8+11+8+10+10+6+10+4+2+2+3=101

1 State whether each of the following variables is nominal, ordinal, interval, or ratio.
(a) Family income
(b) Letter grades
(c) Ethnicity
(d) Calendar year
(e) Earnings per share

2 Consider the following data.

2.8, 3.4, 3.9, 4.0, 3.7, 2.9, 3.5, 3.6, 3.6, 4.0

(a) Construct a stem-and-leaf display.

n =
SU=
LU=

(b) Find the mean. Show your work.

(c) Find the mode.

3 If somebody invests \$3,000 at 5%, \$7,000 at 6%, and \$20,000 at 7%, what is the overall percentage yield of these investments? What kind of a mean is this?

4 Following table presents results of a recent salary survey of business graduates.

Class	Frequency
0-4	13
5-9	28
10-14	45
15-19	23
20-14	11

Find the following:

(a) Class mark of the class 0-4.

(b) Class **boundaries** of the class 0-4.

(c) Class interval.

5 Percentage growth in sales during the second quarter of 2002 for 10 companies are given below.

1.22	0.57	1.25	4.78	-0.55
1.25	3.63	1.00	-0.88	0.25

(a) Find the five number summary.
(b) Draw a box plot.
(c) Are there any outliers? Comment in terms of today's economy.

6 One patient's systolic blood pressure, measured daily over several weeks, averaged 202 with a standard deviation of 12.5, while that of another patient averaged 124 with a standard deviation of 8.1. Which patient's blood pressure is relatively more variable?

7 Consider the following sample of yields for six bonds during the year 2001.

Issuer	Yield
Inland Steel	2.22
ABC Foods	2.34
Unisys	2.55
Kroger A	2.99
American Standard	2.12
Stone Container	1.88

Find the following.

(a) Range.
(b) Variance.
(c) Standard deviation.

8 Match the following symbols with the definitions.

σ^2 μ $\bar{X}_w$ $\bar{X}$ s^2 $\tilde{X}$ s σ $\sum$ Q_3

(a)	Sample mean	(g)	Weighted mean
(b)	Sample variance	(h)	Summation notation
(c)	Population mean	(i)	Sample standard deviation
(d)	Population variance	(j)	Population standard deviation
(e)	Median	(k)	First quartile
(f)	Grand mean	(l)	Other

9 Among the 18 candidates for five positions on a city council, 10 are Democrats, 6 are Republicans, and 2 are Independents. In how many ways can the 5 councilmen be chosen so that 3 are Democrats, 1 is a Republican, and 1 is an Independent? **Simplify the answer.**

10 In a large city the average retail price of a head of a lettuce is \$1.09 with a standard deviation of \$0.15 and the average retail price of a pound of tomatoes is \$0.88 with a standard deviation of \$0.06.

If a certain food market charges \$1.39 for a head of lettuce and \$0.99 for a pound of tomatoes which of these food items is relatively over priced?

11 Given the letters A, B, and C, list all the **combinations** and **permutations** for selecting two letters. Like AB, AC, etc.

Combinations	Permutations

12 What is a combination?

13 According to the empirical rule, for a bell shaped curve there will be approximately ____________ percent of the data within one standard deviation about the mean.

14 What are the differences between mean and median?